

REMARKS/ARGUMENTS

Favorable consideration of this application is respectfully requested. Applicants have amended claims 21, 22, 24, and 29 to more clearly set forth Applicants' invention and to reduce issues in the application. No new matter has been entered and no new issues have been raised. Favorable reconsideration of this application is, consequently, earnestly solicited in view of the following remarks.

With respect to the specification, the first paragraph has been amended to contain a specific reference and relationship to the prior nonprovisional application. The status of the nonprovisional parent application has also been included. The Examiner's attention is respectfully directed to the transmittal letter requesting the filing of the Divisional Application. The heading of the letter contains the specific reference and relationship to the nonprovisional parent application. Item 3 in the body of the transmittal letter requests that the specification be amended by including the specific reference and relationship to the nonprovisional parent application as the first sentence of the specification. In addition, Page 1 of the Preliminary Amendment for the Divisional Application, as well as the header of the Preliminary Amendment for the Divisional Application, contain the specific reference and relationship to the parent nonprovisional application. The Applicants respectfully contend that the priority claim to the parent nonprovisional application was established on the filing date of the Divisional Application.

With respect to the Information Disclosure Statement filed 18 July 2003, the Applicants respectfully contend that the IDS complies with the requirements of 37 CFR 1.98(d) in that the earlier application has been properly identified on each sheet of the IDS; the earlier application is relied on for an earlier effective filing date under 35 U.S.C. 120 and 35 U.S.C 121 as discussed in the paragraph above; and the IDS submitted in the earlier application complied with the requirements of 37 CFR 1.98 (a) through (c). Applicant requests the examiner enter and make of record each of the references listed on the prior art forms in view of the fact the previous examiner made these references of record. If the prior art listed is not made of record, applicant respectfully requests the applicant be allowed to supply additional hard copies of the references.

With respect to the objections to the specification, applicant has made a good faith attempt to respond to all corrections noted by the Examiner and corrections of minor editorial problems have been attempted by amending the specification.

Claim 21 is amended to define the invention more particularly and distinctly so as to overcome the technical rejection and define the invention patentably over the prior art. Amended independent claim 21 is limited to a composition for the detection of energy radiation.

Claims 21-23 have been rejected under 35 U.S.C. 102(b) as being clearly anticipated by Berkstresser et al. (US 5,164,041). With respect to the Berkstresser patent, one cannot find any connection regarding the invention as set forth in amended claims 21, 22, and claim 23. Berkstresser teaches a method for growing a crystal of rare-earth doped rare-earth orthosilicate for use in solid-state non-semiconductor lasers and not for a scintillation detector. Among the applications cited in the patent, the subject scintillating crystal is not one of them. Applicants see nothing in the Berkstresser patent that could be a proper basis for this rejection. In applicants' view, the only relevant art must be limited to scintillation monocrystals and any teaching of how to grow the claimed mixed crystals in a monocrystalline structure.

Applicants respectfully contend that the composition taught by Berkstresser et al. is not disclosed with sufficient specificity to constitute anticipation of the present invention. The generic formula of Berkstresser et al. encompasses a vast number of compounds for growing crystals that seem promising for use as an active media generating simulated emissions in irradiated crystals, specifically Yttrium orthosilicates (column 1, lines 21-36), and which may be used as the laser medium in solid-state non-semiconductor lasers (column 2, lines 8-19). Berkstresser et al. teaches how to grow rare earth orthosilicate crystals in which light scattering defects are substantially absent (column 2, lines 3-5). Claims 21 -23 of the present invention define an improved scintillation crystal for use as a gamma ray or other high-energy radiation detector (page 5, lines 5-6) that eliminates the problems of the LSO crystal without sacrificing scintillating properties (page 6, lines 21-22). The claims for the applicant's formula, limited to a narrow range of Cerium doped Lutetium Yttrium Orthosilicate (LYSO) crystal compounds that

exhibit improved scintillation properties and overcome the problems of the prior art with respect to scintillation crystals, distinguish over Berkstresser et al.

Applicants further note that the Berkstresser et al. reference was cited and made of record in the parent application to the subject invention that has already issued. MPEP section 706.04 states that full faith and credit should be given to the action of a previous examiner unless there is clear error in the previous action or knowledge of other prior art. The examiner should not take an entirely new approach or attempt to reorient the point of view of a previous examiner in mere hopes of finding something. Amgen Inc. v. Hoechst Marion Roussel, Inc. 126 F. Supp. 2d 69, 139, 57 USPQ 2d 1449(D-Mass 2001). Removal of this reference is respectfully requested.

Claim 21 has been rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kurata et al. (US 5,690,731). Kurata teaches a method of growing a single crystal of a rare-earth silicate represented by the general formula: R_2SiO_5 wherein R represents at least one rare-earth element selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Tb, Dy, Ho, Er, Tm, Yb, Lu, Y and Sc (column 4, lines 13-16). Kurata does not disclose a mixed compound scintillation monocrystal “composition for detection of energy radiation” as in the present invention nor a method for growing such a crystal as defined by . Applicants see nothing in the Kurata patent that could be a proper basis for this rejection. Removal of this rejection is respectfully requested.

Claim 24 is amended to recite the limitation of mixing Lu_2O_3 , Y_2O_3 , CeO_2 , and SiO_2 together to form a mixture in accordance with the specification. The compound SiO_3 was included in error in the claim and should be CeO_2 as presented in the specification (page 8, lines 4-6). Amended independent claim 24 is also limited to a scintillation crystal to define the invention more particularly and distinctly.

Claims 24-28 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Berkstresser et al. (US 5,164,041). Nowhere does the Berkstresser reference cited in the office action show it would be obvious to make mixed composition scintillation monocrystals as is claimed in the subject invention. Berkstresser teaches a technique for the growth of single crystals of rare earth doped rare-earth orthosilicate crystals which may be used as the laser

medium in solid-state non-semiconductor lasers, specifically operable at very high optical output. The present invention claims a method of making a scintillation crystal, specifically a LYSO crystal. It would not have been obvious, in the method of Berkstresser et al., to provide a melt having the desired composition to obtain a LYSO crystal having the desired scintillation properties of the present invention. Applicants respectfully contend that amended claim 24 and previously submitted claims 25–28 define patentably over Berkstresser et al.

Again, the Berkstresser et al. reference was cited and made of record in the parent application to the subject invention that has already issued. MPEP section 706.04 states that full faith and credit should be given to the action of a previous examiner unless there is clear error in the previous action or knowledge of other prior art. The examiner should not take an entirely new approach or attempt to reorient the point of view of a previous examiner in mere hopes of finding something. Amgen Inc. v. Hoechst Marion Roussel, Inc. 126 F. Supp. 2d 69, 139, 57 USPQ 2d 1449(D-Mass 2001). Removal of this reference is respectfully requested.

Claim 29 is amended to correct the incorrect reference to seed and to accurately reflect the method presented in the specification (page 8, lines 16–18).

Claim 29 was rejected under 35 U.S.C. 103(a) as being unpatentable over Berkstresser et al. (US 5,164,041) in view of Kurata et al. (US 5,690,731). For at least the above stated reasons these references do not describe, teach, nor suggest the claimed invention. Kurata et al. does not overcome the deficiencies to Berkstresser. Claims 22–29 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kurata et al. (US 5,690,731) in view of Berkstresser et al. (US 5,164,041). Applicants submit that the novel physical features of claims 22–29 are not obvious and hence patentable under 103(a) since they produce new and unexpected results over Kurata et al. and Berkstresser et al. or any combination thereof. Berkstresser teaches a technique for the growth of single crystals of rare earth doped rare-earth orthosilicate crystals which may be used as the laser medium in solid-state non-semiconductor lasers, specifically operable at very high optical output. Kurata teaches a method of growing a single crystal of a rare-earth silicate represented by the general formula: R_2SiO_5 wherein R represents at least one rare-earth element selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Tb, Dy, Ho, Er, Tm, Yb, Lu, Y

and Sc (column 4, lines 13-16). Nothing in the combination of the references suggests the present invention of making a cerium doped lutetium yttrium orthosilicate monocrystal that exhibits improved scintillation properties and overcomes the problems of the prior art with respect to scintillation crystals.

The Applicants respectfully contend new matter is not present in amended claim 24, claims 25-28, and amended claim 29 relative to the parent application. The language of these claims has basis in the specification of the parent application (page 8, lines 4-18).

With respect to claims 30-39, the examiner's attention is respectfully directed to Interference No. 105,083 wherein the Patent Office declared an interference on the subject matter of claims 30-39 and determined that the claims between McClellan (US 6,323,489) and the parent application were clearly conflicting because their claimed subject matter was overlapping with one another. Adverse judgement was rendered against McClellan. Thus, the incorporation of the McClellan claims is not new matter and the specification of the parent application has basis for these claimed features. A decision otherwise would be inconsistent with the Examiner's and Patent Office's previous position.

Again, MPEP section 706.04 states that full faith and credit should be given to the action of a previous examiner unless there is clear error in the previous action or knowledge of other prior art. The current examiner should not take an entirely new approach or attempt to reorient the point of view of a previous examiner and the findings of the patent office that these claims are encompassed in the subject invention, in mere hopes of finding something. Amgen Inc. v. Hoechst Marion Roussel, Inc. 126 F. Supp. 2d 69, 139, 57 USPQ 2d 1449(D-Mass 2001).

As discussed in the Interference Initial Memorandum for Interference No. 105,083, and as the Examiner has noted in the Office Action for the present application, the molecular formula of the McClellan patent is the same as the molecular formula of the present application despite the different expressions. The Patent Office as well as the Examiner determined that the ranges for the formula of the McClellan claims and the ranges for the formula of the present application are anticipated or made obvious in view of each other. Further, the Interference Initial Memorandum

notes that the luminescence wavelength and the luminescence decay time recited in the McClellan claims were made obvious by the principle of inherency in the composition. Applicants respectfully contend that, in light of the adverse judgement against the McClellan patent, the subject matter of the parent application and now divisional application provide basis for the claims of the McClellan patent, now incorporated as claims 30-39, and that this is not new matter. Thus, removal of this rejection is respectfully requested.

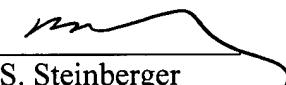
Claims 30, 31, and 34-39 were rejected under U.S.C. 103(a) as being unpatentable over Kurata et al. (US 5,690,731) in view of Berkstresser et al. (US 5,164,041) and Fitzpatrick (US 5,500,147). The Fitzpatrick reference does not overcome the deficiencies to the other references. In addition, claims 32 and 33 were rejected under U.S.C. 103(a) as being unpatentable over Kurata et al. (US 5,690,731) in view of Berkstresser et al. (US 5,164,041) and Fitzpatrick (US 5,500,147) as applied to claim 31 above, and further in view of Melcher et al (J. of Crystal growth 128:1001-1005, 1993) and Loutts et al. (J. of Crystal Growth 174:331-336, 1997).

Applicants are confused by the Examiner's statement that Kurata et al. discloses that the composition is widely used as a crystal scintillator nor does Kurata et al. disclose a scintillation detector comprising a photodetector optically coupled to the crystal scintillator for detecting light from the crystal scintillator. Notwithstanding, applicants contend that the novel physical features of claims 30-39 are not obvious and hence patentable under 103(a) since they produce new and unexpected results over Kurata et al. and Berkstresser et al. and Fitzpatrick. Kurata teaches a method of growing a single crystal of a rare-earth silicate represented by the general formula: R₂SiO₅ wherein R represents at least one rare-earth element selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Tb, Dy, Ho, Er, Tm, Yb, Lu, Y and Sc (column 4, lines 13-16). Berkstresser teaches a technique for the growth of single crystals of rare earth doped rare-earth orthosilicate crystals which may be used as the laser medium in solid-state non-semiconductor lasers, specifically operable at very high optical output. Fitzpatrick teaches a solid scintillation body wherein the preferred material is zinc sulfide doped with copper. Nothing in the combination of the references suggests the present invention of making a cerium doped lutetium yttrium orthosilicate monocrystal that exhibits improved scintillation properties and overcomes the problems of the prior art with respect to scintillation crystals as claimed herein..

Claims 21-23, 30, 31, 34, 35, 37, and 38 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7, 11-13, 16, and 17 of U.S. Patent No. 6,624,420. Concurrent with this amendment and in response to the office action, applicants are filing a terminal disclaimer referencing U.S. Patent No. 6,624,420 with the appropriate fee. Applicants respectfully request that the obviousness-type double patenting rejection be removed.

In view of the foregoing considerations, it is respectfully urged that the above amendment be entered, and all rejections over claims 21-39 be removed and the claims be allowed. If the Examiner believes that an additional interview would be helpful or a further affidavit by the Applicants is necessary, the Examiner is requested to contact the attorney at the below listed number.

Respectfully Submitted;



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Appl. No. 10/623,226
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Annotated Sheet Showing Changes

SCINTILLATING DETECTORS

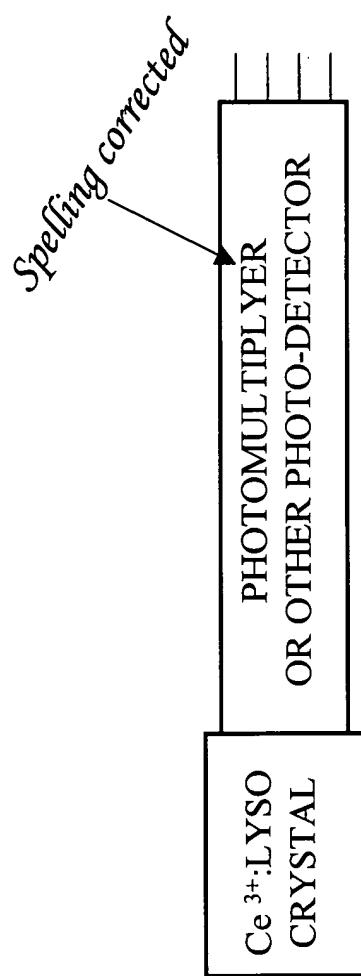


FIG. 2